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February, 1997

1 **AFFIDAVIT OF CARL THORSEN**
2 **DRAFT**

3
4 **I. QUALIFICATIONS**

5
6 I, Carl Thorsen, being duly sworn, depose and state as follows:

7
8 My name is Carl O. Thorsen. My business address is 333 Market Street, San
9 Francisco, California 94105. I am a Principal with Coopers & Lybrand LLP's
10 Telecommunications and Media Consulting Group. I am responsible for the national
11 leadership and development of the Firm's Telecommunications Regulatory Services.
12 For the application of SWBT to provide InterLATA services in the State of Oklahoma, I
13 led the Coopers & Lybrand team responsible for the analysis of Southwestern Bell
14 Telephone's ("SWBT") current and future Operations Support Systems ("OSS") order
15 and pre-order capacity.

16
17 I received a BSEE degree in 1970 from Rensselaer Polytechnic Institute in Troy, New
18 York. I have over 27 years of experience as both a member of the staff of the New
19 York State Department of Public Service (NYDPS) and as a regulatory consultant with
20 Coopers & Lybrand. From 1970-1983, I held numerous positions within the NYDPS
21 culminating in the position of Chief Rates Analyst. During my employment with the
22 NYDPS, I was responsible for the development of public policy issues, product cost
23 analysis, product pricing, tariff reviews and resolution of carrier and customer issues. I
24 testified on numerous occasions on a broad range of topics, including customer
25 ownership of inside wire; coin telephone, centrex, private line, and service connection
26 costs and prices; and access charge structure and pricing.

27
28 Since joining Coopers & Lybrand, I have consulted with each of the Regional Bell
29 Operating Companies, GTE, Frontier, Bellcore, RCN, Consolidated, AirTouch, Iridium,
30 Guam Telephone Authority, Kuwait Telephone Authority, Korea Telecom, NTT, and the
31 Comision Nacional De Comunicaciones in Argentina. I have led engagements covering
32 privatization; global regulatory requirements for voice LEO (Low Earth Orbiting
33 Satellites) entry; Part 64 design, implementation, and compliance with FCC rules;
34 service quality performance and compliance; long distance market entry; broadband
35 cost/performance analysis; product profitability systems; regulatory compliance for
36 affiliated transactions, Parts 32 and 36; and universal life line service cost support.
37 Most recently I have worked with two of the RBOCs to identify the costs to comply with
38 the Telecommunications Act of 1996 and the counterpart FCC order, and with several
39 other RBOCs concerning OSS implementation in view of requirements of the Telecom
40 Act and the FCC.

41 **II. PURPOSE OF TESTIMONY**

42

43 The purpose of my testimony is to present the results of our analysis and testing of
44 SWBT's CLEC Operations Support Systems ("OSS") for order and pre-order. Testing
45 and analysis occurred from June 1997 through August 1997. Updates to SWBT's
46 capacity to process CLEC orders manually were based on December 1997 actuals.
47 The analysis concentrated on the capacity of SWBT's systems to handle anticipated
48 ordering loads. Specifically we:

49

- 50 • Determined SWBT's current capacity to process pre-order and order transactions
51 both manually and electronically, for resale and unbundled network elements
52 ("UNEs");
53 • Examined SWBT's manual and electronic plans, programs and processes to
54 respond to increases in resale and UNE activity;
55 • Reviewed the SWBT testing approach employed during systems development;
56 • Assessed the sustainability of operations support systems;

57

58 All of the work contained in this document was directed under my supervision.

III. OVERVIEW OF CURRENT SITUATION AND FINDINGS

What are the results of your analysis?

SWBT has more than sufficient region wide capacity in place to process current CLEC order transactions for both resale and UNE. In terms of orders for December 1997, the total capacity for manual and electronic (LEX & EDI) systems are 406,854 and 439,690 orders respectively (based on a 10 hour day and 21 days per month). This greatly exceeds the manual and electronic actual posted December orders which were 83,543 manual and 49,122 electronic. Additionally, the availability of EASE to CLECs for order and preorder activity supplements capacity by an additional 1,042,860 negotiations per month.

Orders, which are defined in Section V of my testimony, represent a number of events such as disconnects, conversions, moves or changes. LSRs (Local Service Requests) result in line gains, line losses and in some cases no line change at all. In some cases, one order will equate to one LSR and in others, such as UNE, many orders will comprise one LSR. Therefore, for simplicity and consistency throughout the testimony we will refer to capacity for manual and electronic processing in terms of "orders", which are the lowest common denominator for all processing. The one instance where "orders" is not used is in relation to EASE capacity. Unlike DataGate and Verigate, where each pre-order transaction involves a read from common back-end systems that can be identified and measured, an EASE negotiation is an initial read of all of a customer's pertinent information. Individual pre-order transactions in EASE are then performed locally on data retrieved during the initial negotiation. These individual transactions cannot be tracked in EASE; however, an individual pre-order transaction necessitates at least one negotiation, and if an order is placed, it is part of the same negotiation. Therefore, we will refer to capacity for EASE in terms of "negotiations".

Based on a comparison of the projected manual and electronic order processing capability and year end 1998 demand, planned December 1998 capacity exceeds CLEC manual order requirements under a multitude of assumptions. With an expected December 1998 headcount of 593 service representatives available for CLEC order and order related work, SWBT could process 356,541 manual orders per month. Order processing capacity declines from 1997 to 1998 because of the change in mix of orders. UNE orders, which are not part of the 1997 mix but comprise one third of 1998 orders, are considerably more time consuming to process than Residence and Business basic resale. Electronically, SWBT would have the same capacity as today, 439,690 orders per month. EASE too would be available at 1,042,860 negotiations per month.

The December 1997 pre-ordering capacity for DataGate and Verigate is the equivalent of 592,970 and 521,826 orders per month respectively. This too exceeds the year end 1998 forecast of CLEC demand for manual and electronic processes, under a variety of growth assumptions.

Our analysis also included a review of the sustainability of SWBT operations support systems. Sustainability is the ability to avoid systems break-downs, and to recover

107 from such in the event they occur. SWBT has formal security controls and operations
108 controls (key requirements for sustainability) in place for its EASE, EDI, LEX, DataGate,
109 and Verigate systems. Additionally, SWBT has formal configuration management
110 controls in place for EASE, DataGate and Verigate. SWBT employed formal change
111 management and documentation update controls (two of three components of
112 configuration management) for LEX and LASR. However, the company lacked formal
113 change request management procedures (the final component of configuration
114 management) at the time of our initial review in June 1997. No formal configuration
115 management procedures were employed for EDI, LEX or LASR at the time of our initial
116 review. After our discussions with management, SWBT developed and implemented
117 formal configuration management procedures which address those areas previously
118 found lacking for EDI, LEX, and LASR.
119

120 **IV. PRE-ORDER CAPACITY: RESALE AND UNE**

122 **Q. Define pre-order**

124 Pre-order is the process of submitting inquiries and receiving informational responses
125 for resale and UNE orders via EASE, DataGate, and Verigate.

127 Pre-order includes, for the most part, the following specific functionality:

- 129 • Customer service record retrieval - resale
- 130 • Address verification - resale/UNE
- 131 • Telephone Number reservation - resale/UNE
- 132 • Services/Features availability - resale/UNE
- 133 • List Primary Interexchange Carrier (PIC) - resale/UNE
- 134 • Facilities verification - UNE
- 135 • Due date availability - resale
- 136 • Dispatch - resale

138 **Q. Please explain SWBT's current pre-order arrangement**

140 SWBT offers CLECs three systems which process pre-order transactions: EASE,
141 DataGate, and Verigate. (Exhibit IV-1).

143 *EASE (Easy Access Sales Environment)* is an on-line application developed by SWBT
144 in late 1990 which performs pre-order inquiries and processes order transactions. This
145 application is currently being used by SWBT service representatives in the retail and
146 wholesale environment. EASE processes retail and resale transactions only, not
147 UNEs. A new version of EASE was developed in 1997 specifically for CLEC use.
148 Modifications to the application for CLEC use were primarily related to user interface,
149 as opposed to functionality. However, additional enhancements to support conversions
150 were provided for CLEC transactions.

152 There are currently eleven CLECs who are using EASE. Service representatives
153 access EASE via terminals/workstations through remote access to the Tandem
154 computer server. Based on a review of SWBT training attendance records, as of
155 December 1997, a total of 150 CLEC representatives from 22 CLECs have attended
156 EASE training and other training/informational courses.

158 *DataGate* is a set of software components and libraries that comprise the strategic
159 middleware of SWBT. DataGate business services are reusable software components
160 that perform common business functions, such as pre-order transactions. Applications
161 (like Verigate and those authored by CLECs) invoke DataGate business services
162 beneath their own graphical user interface. DataGate has been in production since
163 1995. A DataGate business service, referred to as "LSP Access" and which performs
164 all pre-order transactions, was made available to the CLECs in January, 1997.

Verigate (Verification Gateway) is an on-line, front end Graphical User Interface (GUI) which facilitates access to the DataGate application. This application was originally being used by SWBT interexchange carrier customers. However, a new version was developed for CLEC-specific use. Verigate operates on a SunSparc server and CLEC representatives can access the application through the Toolbar.

Today, when a SWBT Local Service Center ("LSC") representative is processing a CLEC's order, limited pre-ordering information is verified as a part of normal data entry. If errors are found in the order which prevent data entry, the LSC notifies the CLEC using the fax log which is normally sent to the CLEC for Firm Order Confirmation ("FOC") purposes. Customer service records (CSRs), which are part of the preorder process may be requested by the CLECs. When there is a request, the service representative places an electronic request to have the CSR mailed to the CLEC. Other pre-order requests (e.g., address verification, telephone number verification, service availability, etc.) are made via telephone.

Q. What is the purpose of pre-order capacity testing?

The purpose of the pre-order capacity testing is to identify the number of CLEC pre-order transactions that could be electronically executed by SWBT's EASE, DataGate and Verigate systems.

Q. How did you determine the current capacity of SWBT's pre-ordering electronic systems ?

DataGate and Verigate Capacity Testing Approach

For DataGate and Verigate, we performed independent transaction tests by processing sample pre-order transactions through each individual system. The test was conducted in August 1997. C&L developed the requirements for the test data and provided the requirements to SWBT. C&L reviewed a summary of the test data developed by SWBT to ensure the data corresponded to the requirements.

Our tests for response times were based on 102 pre-order transactions, separately processed through DataGate and Verigate a total of 33 times. Our tests for DataGate capacity were based on 200 pre-order transactions processed a total of 6 times, while our tests for Verigate capacity were based on 102 pre-order transactions processed a total of 48 times.

For the purpose of measuring response times, the transaction data set was run during a production day, while tests to obtain capacity measures were run during off-peak hours. The distribution, or mix, of pre-order transaction types for all data sets was determined based on historical SWBT CLEC transaction distributions, adjusted for anticipated changes resulting from further CLEC market entry. The test data set included resale and UNE pre-order transactions across both Residential and Business segments.

To simplify comparisons of capacity between pre-ordering and ordering systems, a conversion factor was computed to allow pre-order transaction capacities for DataGate and Verigate to be stated in terms of equivalent orders. Using production information from EASE and transaction forecasts provided by SWBT, Coopers & Lybrand was able to compute a weighted-average number of pre-order transactions per order. This number, also referred to as the "conversion factor" is 6.835 pre-order transactions per order.

EASE Capacity Testing Approach

Our capacity analysis for EASE was based on a review of past and present negotiation volumes. We identified the day in 1997 with the highest volume and used the corresponding CPU utilization as a measure of capacity. Next, we determined the CPU utilization per negotiation and estimated the capacity at a utilization rate of 80% (20% assigned to computer operating system overhead).

Q. What is the capacity for processing pre-order transactions?

DataGate/Verigate Capacity Test Results

The results of the DataGate capacity tests indicate that approximately 13,272 pre-order transactions per hour may be processed by DataGate. Using the conversion factor, this capacity translates to approximately 2,824 orders per hour, or 592,970 orders per month (Exhibit IV-2). Average response time per pre-order transaction was approximately 3 seconds, except for "Facilities Availability" and "List Primary Interexchange Carrier" which took an average of 13 and 22 seconds respectively.

The results of the Verigate capacity tests indicate that approximately 11,680 pre-order transactions per hour may be processed by Verigate. This capacity translates to approximately 2,485 orders per hour, or 521,826 orders per month (Exhibit IV-2). Average response time per pre-order transaction was approximately 5 seconds. Since Verigate must go through DataGate to access other systems, the capacity numbers for Verigate and DataGate are not cumulative.

EASE Capacity Test Results

The results of the EASE capacity analysis indicate that EASE, for both SWBT and CLEC use, has a total processing capacity of approximately 180,460 negotiations per day at a CPU utilization of 80% (Exhibit IV-3).

Based on CPU utilization statistics corresponding to peak hour processing, which occurred on September 2, 1997, average CPU seconds per negotiation was 12.437. Based on historical data and trending analysis performed by SWBT, the maximum CPU busy time possible without compromising service levels is 80%. At 80% utilization and an average CPU busy time of 12.437 seconds per negotiation, the current Tandem server configuration running at peak capacity during all operational hours (8:00 AM to 6:00 PM), has a total negotiation processing capacity of 180,460 negotiations or orders per day.

259

260 To date, the highest volume of negotiations processed in a single day for EASE was
261 109,000 on December 1, 1997. Based on analysis of prior years data, SWBT
262 forecasted a maximum load of 130,800 negotiations per day for 1998 (for retail use).
263 This leaves capacity to handle an additional 49,660 CLEC negotiations (pre-orders) per
264 day, or 1,042,860 additional negotiations per month.

265 **V. ORDERING CAPACITY**

266

267 **Q. Define ordering**

268

269 Ordering involves the actual transmittal of the Order or Local Service Request from the
270 CLEC to SWBT and the creation of service orders that add, modify, or delete customer
271 records. For resale and UNE, a single LSR may consist of multiple service orders.
272 CLEC service order types generally include:

273

- 274 • New Order: Establishing a new account on the system
- 275 • Change Order: Modifying an existing account (e.g., adding/deleting features,
276 suspend, restore)
- 277 • Record Order: Modification of account information (e.g., billing name/address)
- 278 • Disconnect Order: Termination of service either on a main or bill-on account (e.g.
279 non-payment, out of region moves)
- 280 • From/To Order: Transfer of service from one location to another (e.g., customer
281 moves)
- 282 • Conversion Order: Transfer of service from one local service carrier to another with
283 or without changes ("resale as-is" and "resale as-specified" orders)

284

285 Throughout the ordering section of this affidavit, both orders and the resulting service
286 orders will be placed into the following service categories for capacity measurement
287 and comparisons to forecasts.

288

- 289 • Residential resale (e.g. resale POTS service for a residence)
- 290 • Business Basic resale (e.g. resale POTS service for a business)
- 291 • Complex resale (e.g. PBX trunk for a business)
- 292 • UNE (e.g. loop w/port combination for business or residence)

293

294 **Q. Please explain the current ordering arrangements for resale and UNE.**

295

296 Currently, CLECs may send orders manually via fax, mail, and phone or electronically
297 via EASE (resale only) and EDI (resale and UNE). Fax and mailed orders are
298 completed on standardized forms. Incoming orders are sorted and logged by the LSC
299 staff.

300

301 On an electronic basis, there are six systems that may be involved in processing orders
302 (Exhibit V-1).

303

304 *EASE*, as described previously, processes resale orders in addition to pre-order
305 activity.

306

307 *EDI (Electronic Data Interchange)* is a batch application that allows CLEC orders to be
308 electronically transferred to SWBT. EDI batches are processed periodically throughout
309 the day. This application was implemented in January 1997.

LEX (*Order Exchange*) is a graphical user interface developed by SWBT for operation on Windows™. It allows CLECs to electronically create and transmit resale and UNE orders, receive acknowledgments and notification of error details and track FOCs and SOCs. LEX is an option for CLECs who wish to use national guidelines ordering formats but do not have to establish EDI capability. LEX became fully available in November 1997.

LASR (*Local Access Service Request*) is a batch application that edits incoming orders received from EDI and LEX. This application verifies record layout and edits content, and was implemented in January 1997.

MOG (*Mechanized Order Generator*) is a subsystem of SORD. It receives orders from LASR, produces individual service orders, and stores these orders in SORD. This application was implemented in January 1997.

SORD (*Service Order Database*) is a mainframe application that stores service orders and initiates FOCs.

At the time of our May 1997 review, most orders from CLECs were being sent manually. This was still the case as of December 1997. The SWBT LSC service representatives are distributed into "units." Each "unit" is responsible for a CLEC or a group of CLECs. Orders received via fax are sorted and logged, and then routed to the "unit" responsible for the CLEC. If correctly provided to SWBT by the CLEC, the order is entered into EASE (Resale, Business or Residential) or SORD (Complex resale or UNE). Upon successful data entry, the representative records order information on the log sheet (i.e., order number, due date, telephone number). Orders in error are also logged on the sheet, and the representative indicates the nature of the problem. When the representative completes processing all orders on an individual log sheet, it is faxed to the CLEC, and the faxed log serves as the FOC. Representatives have a routine for checking a screen which identifies any orders that had been flagged by a downstream system with an error. Subsequently, the representatives make needed corrections and re-process the order.

The LSC has established a process for handling Complex Orders. Incoming orders are initially received by the service representatives through the same process as other orders. Complex orders are routed to representatives with additional training on these types of orders. When necessary, the representatives will also involve a Communications Consultant in the order process. The consultants research the order (e.g., verify if a contract exists for the CLEC) and determine any additional requirements (e.g., sequencing of component service order processing) for the order. The Communications Consultant then either enters the order into SORD or routes it to one of the representatives trained in Complex orders for data entry.

LEX and EDI are electronic applications which allow the CLEC to send orders without the intervention of the LSC for Residential and Business conversions (Exhibit V-2). Currently, LEX and EDI process Residential and Business Basic resale orders on a flow-through basis (end-to-end electronic handling of orders). Complex resale and UNE orders can be electronically submitted by CLECs, but after LASR processing, they

358 are routed to and handled by the LSC.

359

360 Orders that are routed from LASR to the LSC will be forwarded to the service
361 representatives via an electronic "work folder". The "unit" responsible for the CLEC will
362 print the orders. The representative will then identify the data required to process the
363 order. Once this is complete, the order will be processed via EASE or SORD.

364

365 In December 1997, 83,543 resale service orders were manually processed in the LSC
366 and 49,122 orders were received electronically. Of the manual orders processed in the
367 LSC, 70,176 were Residential service orders and 13,367 were Business service orders
368 (Exhibit VI-3).

369

370 **Q. What was the purpose of your ordering capacity tests?**

371

372 The purpose of the ordering capacity tests was to identify the number of orders that
373 could currently be processed on a manual and electronic basis for both UNE and resale
374 and to develop information to determine if future demands were matched by future
375 planned capacity.

376

377 **Q. How did you calculate SWBT's current manual ordering capacity for resale?**

378

379 Exhibit V-4 describes the overall methodology for calculating manual capacity by
380 representative by order type.

381

382 Two main time studies for Resale were performed at the LSC. The first study identified
383 the amount of time required to process resale-related service orders, by service order
384 type (e.g. new, change, disconnect) and by service category (e.g. Residential resale,
385 Business Basic resale). 873 service orders during the week of June 9th were recorded
386 and transaction times were measured (Exhibit V-5). We also estimated the effort
387 required to process service orders that fall out of the electronic ordering process. Our
388 time and motion studies indicated that 6% of residential electronic orders would require
389 manual re-work at 10 minutes per order. This equates to about 1 service
390 representative for each 10,000 monthly electronic orders. However, more recent
391 experience with AT&T orders indicate that 47 representatives dealt with re-work for the
392 estimated 45,458 AT&T electronic orders that posted in December 1997. This ratio of 1
393 service representative to each 1,000 electronic orders was the benchmark we
394 employed to adjust service representative headcount as orders shift from manual to
395 electronic.

396

397 The study also indicated that the average estimated transaction time for a Complex
398 Business service order was 9.3 minutes. We questioned the long-run applicability of
399 this estimate given that the mix of services demanded was only conversions and CSRs.
400 PBX trunks, hunting, and other Complex Business service orders were not processed
401 during our study. Accordingly, we polled LSC representatives for their processing time
402 estimate for Complex Business service orders. This resulted in a more conservative
403 estimate of 25 minutes of processing time per Complex Business service order. To
404 increase our confidence in the 25 minutes estimate for Complex Business service
405 orders, we ran a portion of the first time study approximately two months later (August

20-22). We measured the processing time for 55 actual complex service orders, which included PBX trunks, Centrex, and hunting. The average processing time from this repeated study was 20 minutes. However we continued to use the more conservative 25 minute estimate in our capacity calculations.

As a result, the average weighted transaction times after all adjustments for the mix of service orders we measured are as follows:

- Residence resale 5.02 minutes per service order
- Business Basic resale 14.77 minutes per service order
- Complex resale 25 minutes per service order

The second main time study measured the average time per day spent by service representatives on other activities, such as: responding to billing inquiries, attending meetings, filing and logging of other orders, etc. The second test indicated that, on average, 85.5 minutes a day are spent by a representative on non-transaction activities. This estimate was used to reduce the available time per day to handle service orders.

Based on the transaction and non-transaction times, we determined the throughput, which is the number of resale service orders a service representative could process on average in a given day (approximately 73 Residential, 25 Business Basic, or 15 Complex service orders per day per representative).

Q: How did you calculate SWBTs current manual order capacity for UNE?

We used the same methodology described in Exhibit V-4 for calculating UNE manual capacity. UNE capacity was first determined in terms of service orders and then converted to orders using a SWBT estimate of 3 UNE service orders per order.

A time study was conducted to capture the transaction time for entering a UNE order. To replicate the types of UNE orders that SWBT will receive in the future, SWBT created, at our request, a set of test orders to measure processing time. This test set consisted of "loop with port" combination orders that were consistent with the types of orders used to date in the cooperative UNE trials. In the UNE time study, 48 service order time observations were collected and transaction times were determined for UNE service orders. Based on the distribution of the service orders in the test orders and actual historical UNE orders, the weighted average transaction time for UNE service orders was 35.6 minutes per service order.

Because of the low volume of UNE orders in our time study and to obtain a more accurate estimate of steady-state UNE processing times, we repeated our previous study approximately two months later. In this second study, 87 service order time observations were collected and the weighted average transaction time was 19.2 minutes per service order (Exhibit V-6).

To compute UNE throughput (service orders per day per representative), we used the updated average UNE service order transaction times and the non-transaction time

454 estimate from the Resale time study. The resulting throughput for a UNE
455 representative was approximately 19 service orders per day.

456 **Q. Based on your throughput calculations what was SWBT's capacity to process**
457 **manually submitted CLEC orders in December 1997?**

458
459 To determine SWBT's manual order processing capability in December of 1997 we first
460 determined the number of service representatives that SWBT had hired and trained. In
461 December SWBT employed 559 representatives. One hundred of these
462 representatives were assigned to assist in the processing of electronic (EASE and EDI)
463 orders submitted by AT&T. Further, we determined that 38 representatives were
464 required to assist in the processing of electronic orders submitted by other CLECs.
465 Thus 421 representatives were available to process orders received by fax and
466 respond to CLEC inquiries on issues.

467
468 Second, we were provided with the actual mix of orders for the fourth quarter of 1997.
469 This was comprised of Residential and Business Basic resale orders. Given
470 headcount, order mix and throughput we calculated that SWBT could have handled
471 406,854 manual orders in the month of December (Exhibit VI-3).

472
473 The actual manual order volume in December was 83,543. The difference between
474 capacity and actual volumes would have been sufficient to handle 114,831 UNE orders.

475

476 **Q: How did you determine the electronic ordering capacity?**

477

478 To determine the capacity of the electronic ordering applications, a data set of 10,527
479 orders was processed separately through both the LEX and EDI systems. This data
480 set was composed of orders distributed among order types in the same proportion as
481 end-of-year 1997 volume forecasts provided by SWBT. This data set was submitted
482 through both LEX and EDI, and subsequently processed through LASR, MOG, and
483 SORD. The processing steps covered by this test include receiving and evaluating
484 incoming orders, returning any error conditions, storing complete and accurate orders,
485 determining the down-stream path for each order (Mechanical Order Generation [MOG]
486 or Local Service Center), generating service orders for MOG-destined orders, storing
487 completed service orders in SORD, generating Firm Order Completion (FOC) notices,
488 and sending FOCs out of the system through LASR to LEX or EDI. The test was
489 conducted in June 1997.

490

491 The Data Set and Test Cases (documents which specify the character of a test to be
492 performed, including a description of the data to be used, the environment in which to
493 run the test, the process to be used for executing the test, and other items) used in
494 testing the capacity of the ordering systems were produced using SQA2000, Coopers &
495 Lybrand's proprietary methodology for systems quality assurance (Exhibit V-7 is a
496 SQA2000-based checklist). The Data Set was reviewed by C&L in conjunction with
497 SWBT, prior to the execution of the tests. Similar to the Data Set, Test Cases were
498 produced by SWBT based on requirements provided by C&L. These Test Cases were
499 also reviewed by C&L in conjunction with SWBT, prior to execution of a test. Tests
500 were executed by SWBT in accordance with the Test Cases produced.

501 We also performed independent tests of transactions to identify the processing
502 capacity of the EASE application. This test was performed based on the examination
503 of historical transaction data which has been collected over time by the EASE support
504 group. The day of the highest SWBT transaction volume was determined based on
505 historical data which detailed volume of transactions per day for 3 years. The
506 forecasted transaction volume was based on this historical data and 20% volume
507 growth found in the capacity planning documentation provided by SWBT.
508

509 **Q. What were the results of your electronic capacity analysis?**
510

511 The current capacity for the electronic ordering systems, other than EASE, is
512 approximately 2,094 orders per hour, regardless of whether an order originates in EDI
513 or LEX. This equates to 20,940 orders per day, or 439,690 orders per month.
514

515 The capacity for EASE, for both SWBT and CLEC use, is estimated at 180,460
516 negotiations per day (Exhibit IV-3). Each preorder and any resulting order is one
517 negotiation. For 1998 SWBT forecasts a maximum volume of 130,800 negotiations per
518 day for its own retail use leaving capacity of 49,660 daily negotiations for CLEC
519 transactions. This equates to 1,042,860 monthly CLEC negotiations or orders. A
520 complete description detailing the results of EASE capacity can be found in the pre-
521 ordering section of this affidavit.

522 **VI. SCALABILITY**

523
524 **Q. What was the purpose of your scalability analysis?**

525
526 Electronic scalability is the ability of SWBT to identify and mitigate potential capacity
527 constraints for electronic order and pre-order systems before they impact business
528 operations. Similarly, the objective of the manual scalability analysis was to evaluate
529 the ability of SWBT to manage growth of the LSC to meet projected CLEC ordering
530 demand that could exceed current capacity.

531
532 **Q. How does CLEC order activity grow or change in the future?**

533
534 The forecast of CLEC orders for 1998 was presented as a line loss analysis. The line
535 loss analysis indicates expected activity of 413,500 resale lines and 200,000 UNE
536 loops and UNE combinations in 1998. For resale this is a 70% increase over 1997.
537 However, if the 413,500 resale lines are spread evenly over 1998, the activity would
538 look very similar to the fourth quarter of 1997 where 113,000 lines were provided on a
539 resale basis.

540
541 The most significant change in order activity is the forecast of as many as 200,000
542 UNE loops or rebundled UNEs in 1998. The addition of UNE loops to work load can
543 have a significant impact because processing is time consuming. Thus, this is an
544 important element for the planning process.

545
546 The means by which CLECs submit pre-orders and orders to SWBT is also projected to
547 change over time. Currently, most orders (63%) are submitted manually by fax. SWBT
548 currently provides access to electronic systems that provide pre-ordering and ordering
549 capabilities. SWBT projections show that an increasing proportion of pre-order and
550 order transactions will occur through electronic interfaces, growing to 50% by the end
551 of 1998.

552
553 **Q. Please describe your analysis of the scalability of SWBT's manual order**
554 **processing capacity.**

555
556 Our first test of scalability was to match the forecast of line loss (converted to orders)
557 against current and future manual order processing capacity. To convert line loss to
558 orders we determined the relationship of orders to line loss for 1997. In 1997, SWBT
559 processed 730,837 orders for 244,500 resale lines. This equates to an average of
560 three orders per line throughout the year. For 1998, it is expected that resale line loss
561 could be as high as 413,500. SWBT anticipates that 231,500 lines would be processed
562 manually. However, the percent manually processed would decline from 63% in
563 December 1997 to 50% in December 1998. As a result, we determined that SWBT
564 would process 688,200 manual orders during 1998.

565
566 With respect to UNE orders, our time and motion studies revealed that, on average, for
567 a loop with port order, three service orders would be required. Given 200,000 UNE
568 loop and UNE combinations, this equates to 600,000 UNE related orders during 1998.